Hot Tips

Good info for the new ham, and old stuff to refresh your memory

Guy wires

If we ever need to install a tall mast or antenna, often the wind is strong enough to bend it or knock it over, if it's not secured by some sort of tether or support. When the antenna is made of copper, for example, the soft, thin metal is especially easy to bend, even in a mild breeze. We refer to a cord, rope, or other type of line as a ***guy wire*** or ***guy line***. (Sometimes mistakenly called a *guide* wire.)

Not a strict definition, we often call metallic lines (insulated or not) *guy wires*, and non-metal ones *guy lines*, although the term *guy wire* is very commonly used for either case. For the purposes of this short article, let's just call it a ***guy***, then distinguish them by context.

Here are the most common guy material you as an amateur might encounter or need:

◇ Paracord : For daily, temporary, and casual use, regular paracord is handy, lightweight, and inexpensive (5.7¢/ft). You can also get paracord 550 (military specification, Dacron, 550 pounds rated) for a reasonable price (9.1¢/ft).

◇ Mastrant : A newer guy type on the market, Mastrant, such as the MP03100, is UV-protected, very strong, and non-stretching. It's a little more expensive (11.9¢/ft) than paracord, but made specifically for permanent outdoor guying.

◇ Phillystran : Some serious amateurs use Phillystran Kevlar (aka Aramid) guy cabling for their tower and industrial needs. It's probably the most expensive (89¢/ft) and yet one of the strongest of all synthetic guys.

◇ Steel cable : For tall towers and other large structures, many professionals rely on steel cabling, which can be inexpensive (7.0¢/ft), but comes with its own set of problems because it's metal. They need to be installed in sections smaller than a quarter-wavelength each, separated by insulators to prevent distorting the antenna radiation pattern, for one.

You should guy your mast if it's higher than ten feet above its lowest anchor point. Questions arise almost daily about how to install guy wires, by those who need to secure a tall mast. Here are some of them:

Three or four guys per point? Four is stronger and more stable, but three is more convenient. Which ever you choose, anchor them at equal angles around the mast, if possible.

What angle off the ground? When we speak of guy angle, we're referring to the angle off the level ground, not at the top. Ideally, install them at 45°, but lower the angle (by moving the ground anchor point farther away) to 40°, 35°, or even 30°, as needed, in case of strong winds or other stability issues.

How to attach them to the mast? Use a guy ring or collar, which has pre-drilled holes for guys, or attachments such as carabiners.

How far to space them vertically? Always make sure one guy is at the very top, so that no part of my *wire* antenna is higher than my highest guy (short verticals can go higher.) Then, place one or two more part-way down to the bottom, for masts under about 50 feet tall.

Length of each guy? Try and make guy lines twice the height where it attaches to the mast. So, if your mast is 40 feet tall, your longest guy should be 80 feet long.

How to anchor the guys? Hammer in nothing less than 18-inch round stakes to tie them down. One sideways push with a pry bar tends to loosen one enough to remove easily.

Finally, the knots you use for tying guy wires form the topic of another article. They should be quick and easy to remember.